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A WATER WASTE SURVEY IN BUFFALO¹

BY EGBERT D. CASE

Buffalo is an unmetered city. Prior to the spring of 1917 little was done in regard to checking the water waste; on the contrary, the officials rather urged the consumers to use all the water they wanted. With a change of administration in May, 1917, to the commission form of government, the officials started a water waste survey to curtail the waste. At that time the daily consumption amounted to from 165,000,000 to 170,000,000 gallons or over 350 gallons per capita. Today the daily consumption, averaged for the past week, is 130,000,000 gallons or 260 gallons per capita, a saving of 90 gallons per capita per day, without allowing for the natural increase in consumption. At present only 60 per cent of the city has been covered by the survey.

The actual reduction is approximately 53,000,000 gallons daily when corrected for the natural yearly increase. Of this saving, about 10,000,000 is due to underground leakage actually located and stopped, none of which appeared on the surface. The remaining reduction was accomplished by systematic house-to-house inspections, made in connection with pitometer district gaugings.

In organizing the work, the city was laid out into ten sections; each section was divided into six to ten districts. The water was measured by the pitometer in each district, and from the legitimate uses and other conditions in the district, it was determined whether or not a reasonable amount was supplied. The work was started with eight inspectors, and was done under the supervision of one engineer. During the past Summer forty inspectors have been on the job, four gangs in the day and two gangs at night, and four engineers in charge of the work.

The reduction in waste will mean a great deal more to Buffalo than was at first anticipated. During the year ending June, 1918, the city used 61,000 tons of coal. The Fuel Administration has

¹An informal discussion at a meeting of the New York Section, October 16, 1918.

looked the plant over and limited the amount of coal that it will allow Buffalo to use to 50,000 tons for this year. Buffalo has two pumping stations, each of 150,000,000 gallons capacity. The daily consumption is now well within the range of one station. They have shut down one station for a period of several days and expect soon to shut it down permanently, which will save over 1,000 tons of coal a month.

As to the permanency of the reduction in house waste, it is not possible to make predictions at present. Underground leakage amounting to 10,000,000 gallons a day was due principally to leaking services. There were found 89 corporation cocks leaking badly, about 90 per cent of them being "unfinished supplies." On one block the leakage amounted to 750,000 gallons a day from nine unfinished supplies. Another cause was blown joints; there were found 21 blown joints and 10 broken mains. The broken mains were the biggest source of loss per leak.

Hopper bottom and anti-freezing types of closets are a source of great waste in the poorest sections. The rate has recently been raised on this type of closets from \$3 to \$10 per year, in an effort to abolish their use. It is hoped that an ordinance will be passed permitting the city to meter a service wherever it finds no other means to control waste.

DISCUSSION

W. W. BRUSH: The question as to whether taps should be made and services laid to the curb line at the time water mains are installed to supply buildings which will later be erected, and thus prevent subsequent cutting of pavement, is one which is raised from time to time in the majority of communities. Cities which have adopted the policy of placing taps and laying services in advance of building demands, such as Chicago and Buffalo, have experienced very extensive and serious leakage from the unused service pipes. In the speaker's opinion the advantages of such a system are far outweighed by the disadvantages. He was rather surprised at the information given by the author as to the deterioration and ultimate failure of the metal in the service cocks. He had previously supposed that the leakage which would develop from unused services would be outside of the corporation cock. Buffalo's experience with the leakage through the corporation cock

is one which must be due to the character of the water, and it would be interesting to learn whether similar deterioration has been experienced in Buffalo with the meters.

New York City has recently started a house to house inspection to reduce the waste of water. The methods followed are in general those which were successfully adopted in similar inspections made at various times during the past seven or eight years. In the borough of Manhattan alone some 150,000 leaks have been reported. The consumption in the city increased largely over that recorded before the Catskill supply was made available. Catskill water has been generally used to supply the city since the early spring of 1917. The consumption this year has averaged about 70,000,000 gallons daily more than that of a year ago, which is an increase of 15 per cent. During the severe cold of last winter, the increase in consumption averaged over 100,000,000 gallons daily, that for the month of February being 118,000,000 gallons daily. Had it not been for the very large volume of available stored water held in the Kensico reservoir, the abnormal demand of the winter months could not have been met by the Catskill system. This system is now being overdrawn to an extent of about 1,000,000,000 gallons per month. Such overdraft must be stopped, either through the saving of water now wasted, or through the pumping of water, by the utilization of the pumping stations which have been placed in reserve since the Catskill water was made available. In New York it is believed to be possible to save water by house to house inspection at an average cost of less than \$5 per million gallons. To pump water at present prices for labor and material would cost about \$25 per million gallons, without making any allowance for interest or sinking fund charges. The economy of saving water rather than pumping it, is evident. The author should tell what the financial saving has been in Buffalo.

A. W. CUDDEBACK: At the East Jersey Water Company's plant at Little Falls, the capacity is being increased about 20 per cent to take care of any possible repetition during the coming winter of the conditions of the winter of 1917-1918. The meters in Paterson are also being increased about 20 per cent. If this is done 85 per cent of the services will be metered; in Passaic 75 per cent are metered and it is hoped to raise this to 100 per cent during the year. The work has been delayed by difficulty in obtaining meters. So far as

Jersey City is concerned, no steps have apparently been taken to increase or conserve its water supply, and that city may have to draw on Newark or Little Falls during the coming winter.

E. D. CASE: It is rather difficult to state what has been the financial saving in Buffalo as a result of checking waste, because the actual net saving cannot be determined until the work is completed, in the Spring. The commissioner estimates an annual saving of \$130,000 when one pumping station is shut down. The survey will probably cost the city about \$100,000 for city labor and engineering services, inclusive.